AMENDMENTS TO THE CLAIMS

1-105. (Canceled)

106. (Currently Amended) An article comprising:

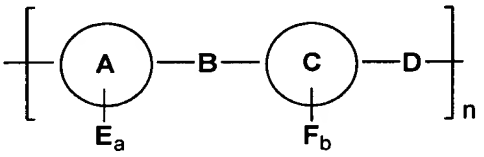
a nanoscopic pathway having a conductivity;

an insulating dielectric surrounding the nanoscopic pathway; and

a nanoscopic switch in electronic communication with the nanoscopic pathway being capable of altering the conductivity of the nanoscopic pathway,

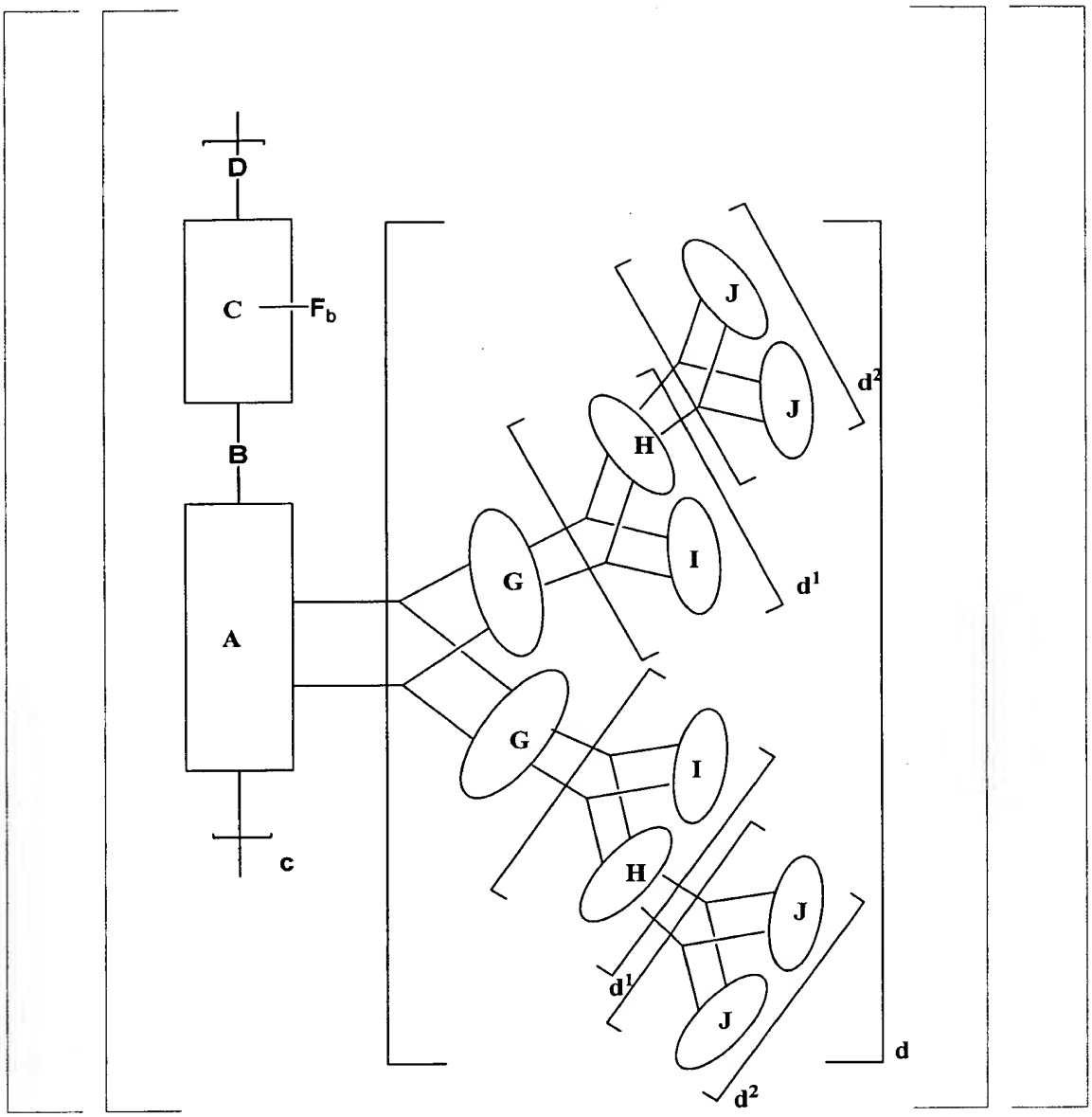
wherein the nanoscopic pathway comprises a conducting polymer,

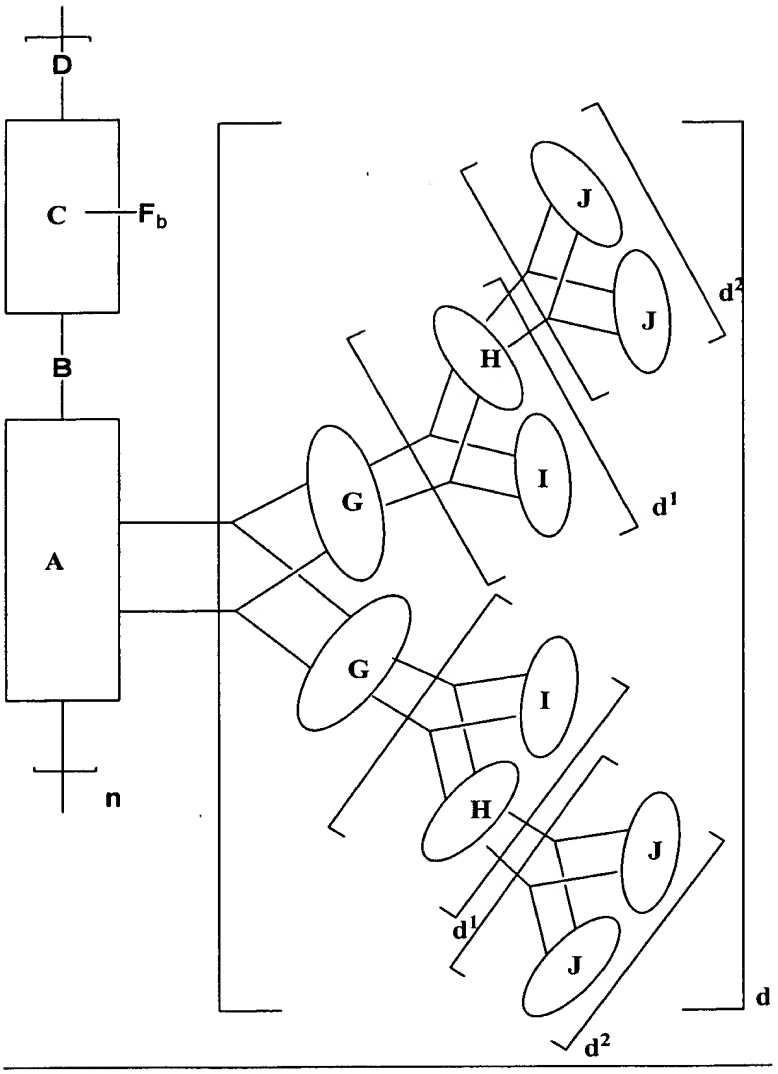
wherein the conducting polymer has a structure comprising the formula:



wherein A and C are aromatic groups; B and D can be a heteroatom or metal and chosen from a group of N, P, S, As, Se, or -CC-M-CC-(M=FeL_x, RuL_x, PdL_x, PtL_x, CoL_x, RhL_x, where L is neutral (phosphine, nitrogen, or π-arene based ligand) or charged (nitrogen, oxygen, or charged π-arene ligand), or are selected from the group consisting of a carbon-carbon double bond and a carbon-carbon triple bond; and any hydrogen on aromatic group A and C can be replaced by E and F respectively, wherein a and b are integers which can be the same or different and a = 0 - 4, b = 0 - 4 such that when a = 0, b is nonzero and when b = 0, a is nonzero, and at least one of E and F includes a bicyclic ring system having aromatic or non-aromatic groups optionally interrupted by O, S, NR^1 and CR^1_2 wherein R^1 is selected from the group consisting of hydrogen, C_1-C_{20} alkyl, C_1-C_{20} alkoxy and aryl and n is less than about 10,000, and wherein, when E or F is not said bicyclic ring system, E or F is a part of aromatic group A or C.

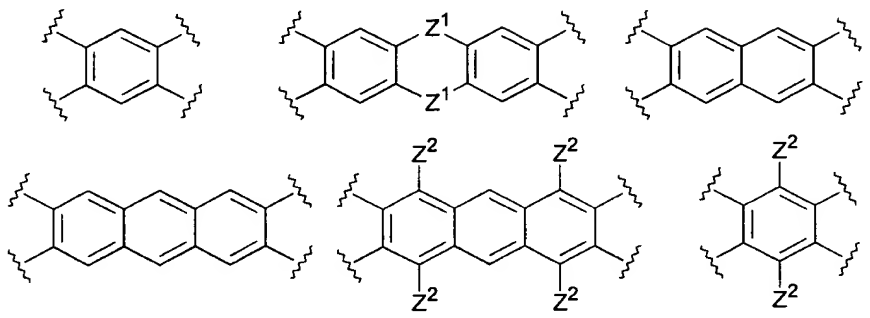
107. (Currently Amended) The article of claim 106, wherein E_a is covalently attached to A, and the conducting polymer comprises the structure:



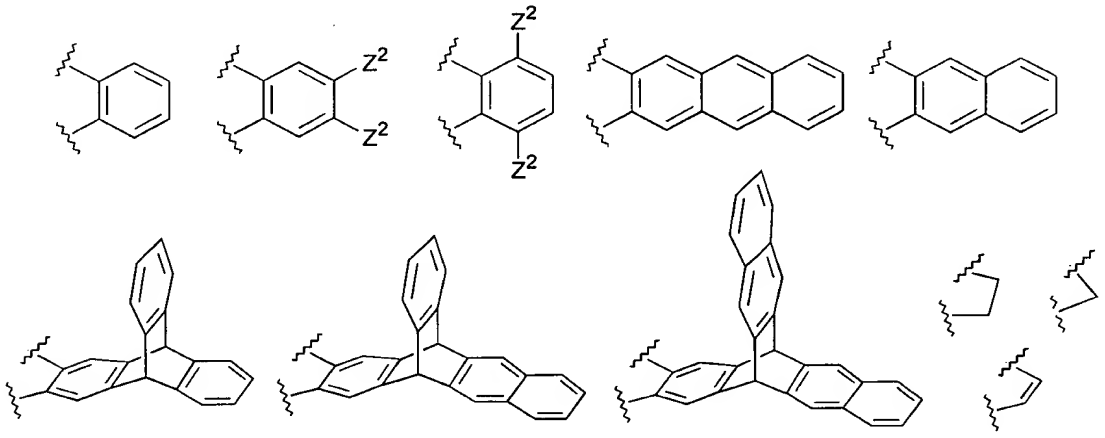


wherein G, H, I, and J are aromatic groups, d = 1, 2, and d^1 = 0, 1, such that when d^1 = 0, d^2 = 0 and when d^1 = 1, d^2 = 0, 1.

108. (Original) The article of claim 107, wherein G and H may be the same or different, and each is selected from the group consisting of:

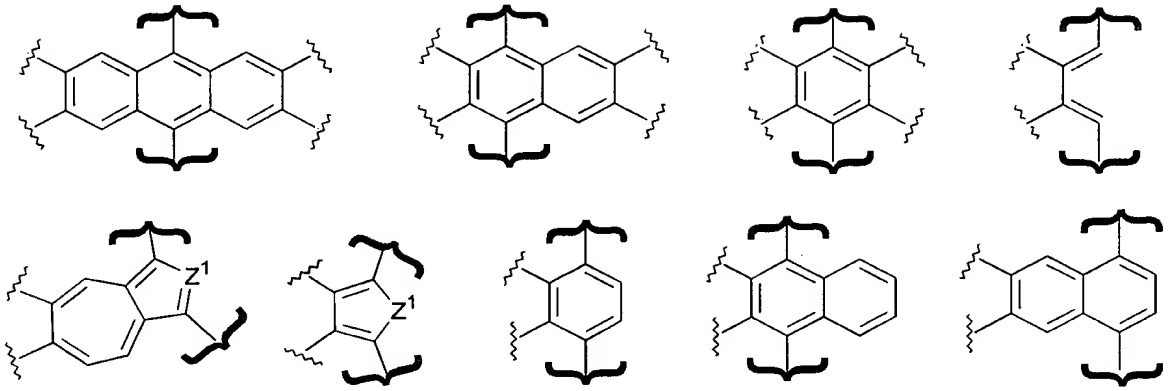


I and J may be the same or different and each is selected from the group consisting of:



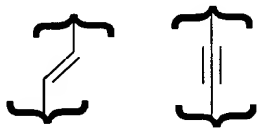
wherein any hydrogen in G, H, I and J can be substituted by R^2, R^2 is selected from the group consisting of C_1-C_{20} alkyl, aryl, C_1-C_{20} alkoxy, phenoxy, C_1-C_{20} thioalkyl, thioaryl, $C(O)OR^3$, $N(R^3)(R^4)$, $C(O)N(R^3)(R^4)$, F, Cl, Br, I, NO_2, CN, acyl, carboxylate, hydroxy, R^3 and R^4 can be the same or different and each is selected from the group consisting of hydrogen, C_1-C_{20} alkyl, and aryl, Z^1 is selected from the group consisting of O, S and NR^8 wherein R^8 is selected from the group consisting of hydrogen, C_1-C_{20} alkyl, and aryl, and Z^2 is selected from the group consisting of F, Cl, OR^3, SR^3, NR^3R^4 and $SiR^8R^3R^4$.

A is selected from the group consisting of:



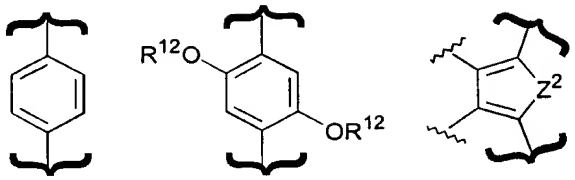
wherein any hydrogen in A can be substituted by R^5, R^5 is selected from the group consisting of C_1-C_{20} alkyl, aryl, C_1-C_{20} alkoxy, phenoxy, C_1-C_{20} thioalkyl, thioaryl, $C(O)OR^6$, $N(R^6)(R^7)$, $C(O)N(R^6)(R^7)$, F, Cl, Br, NO_2, CN, acyl, carboxylate, hydroxy; R^6 and R^7 can be the same or different and each is selected from the group consisting of hydrogen, C_1-C_{20} alkyl, and aryl; Z^1 is selected from the group consisting of O, S and NR^8 and R^8 is selected from the group consisting of hydrogen, C_1-C_{20} alkyl, and aryl;

B and D can be the same or different and each is selected from the group consisting of:



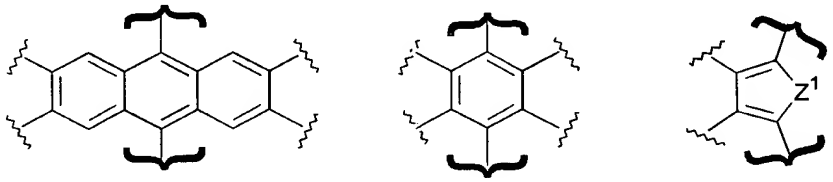
wherein any hydrogen in B and D can be substituted by R^9, R^9 is selected from the group consisting of C_1-C_{20} alkyl, aryl, C_1-C_{20} alkoxy, phenoxy, C_1-C_{20} thioalkyl, thioaryl, $C(O)OR^{10}$, $N(R^{10})(R^{11})$, $C(O)N(R^{10})(R^{11})$, F, Cl, Br, NO_2, CN, acyl, carboxylate, hydroxy, R^{10} and R^{11} can be the same or different and each is selected from the group consisting of hydrogen, C_1-C_{20} alkyl, and aryl;

C is selected from the aromatic group consisting of:



wherein R^{12} is selected from the group consisting of hydrogen, C_1-C_{20} alkyl and aryl; any hydrogen in C can be substituted by F which is represented by R^{13}, R^{13} is selected from the group consisting of C_1-C_{20} alkyl, aryl, C_1-C_{20} alkoxy, phenoxy, C_1-C_{20} thioalkyl, thioaryl, $C(O)OR^{14}$, $N(R^{14})(R^{15})$, $C(O)N(R^{14})(R^{15})$, F, Cl, Br, NO_2, CN, acyl, carboxylate, hydroxy; R^{14} and R^{15} can be the same or different and each is selected from the group consisting of hydrogen, C_1-C_{20} alkyl, and aryl; Z^2 is selected from the group consisting of O, S and NR^{16} and R^{16} is selected from the group consisting of hydrogen, C_1-C_{20} alkyl, and aryl.

109. (Original) The article of claim 108, wherein A is selected from the group consisting of:



and both B and D are:

110-126. (Canceled)